

- (i) a first reporter gene operably linked to a DNA comprising a first protein binding site;
- (ii) a first fusion gene encoding a first fusion protein comprising a first protein covalently bonded to a binding moiety capable of specifically binding to said first protein binding site;
- (iii) a second fusion gene encoding a second fusion protein comprising a second protein covalently bonded to a gene activating moiety; and
- (iv) a third gene comprising a sequence encoding a third protein;
- (b) providing a second host cell comprising
  - (i) said first reporter gene;
  - (ii) said first fusion gene; and
  - (iii) said second fusion gene;
- (c) providing a third host cell comprising
  - (i) a second reporter gene operably linked to a DNA comprising a second protein binding site;
  - (ii) said second fusion gene; and
  - (iii) a third fusion gene encoding said third protein covalently bonded to a binding moiety capable of specifically binding to said second protein binding site;
- (d) measuring expression output of said first reporter gene in said first and said second host cells and said second reporter gene in said third host cell; and
- (e) interpreting the expression output results of step (d), whereby increased output of said first reporter gene in said first host cell relative to the output of said first reporter gene in said second host cell and said second reporter gene in said third host cell indicates that said first, said second, and said third proteins form an oligomeric complex.

42. (New) The method of claim 41, wherein said first binding site and said second binding site are the same.
43. (New) The method of claim 41, wherein said first reporter gene and said second reporter gene are the same.
44. (New) The method of claim 41, wherein said first or said second protein binding site is a tetracycline operator.
45. (New) The method of claim 41, wherein said first or said second reporter gene is URA3 or lacZ.
46. (New) The method of claim 41, wherein said first or said second reporter gene produces a signal that is received and detected by a second cell.
47. (New) The method of claim 41, wherein at least one of said host cells is a yeast cell or a mammalian cell.
48. (New) The method of claim 47, wherein at least one of said host cells is a yeast cell.
49. (New) A method for detecting the formation of a protein complex, said method comprising:
  - (a) providing a first host cell comprising
    - (i) a first reporter gene operably linked to a DNA comprising a first protein binding site and a second protein binding site;
    - (ii) a first fusion gene encoding a first fusion protein comprising a first

- protein covalently bonded to a binding moiety capable of specifically binding to said first protein binding site;
- (iii) a second fusion gene encoding a second fusion protein comprising a second protein covalently bonded to a binding moiety capable of specifically binding to said second protein binding site; and
  - (iv) a third fusion gene encoding a third fusion protein comprising a third protein covalently bonded to a gene activating moiety;
- (b) providing a second host cell comprising
- (i) a second reporter gene operably linked to a DNA comprising said first protein binding site;
  - (ii) said first fusion gene; and
  - (iii) said third fusion gene;
- (c) providing a third host cell comprising
- (i) a third reporter gene operably linked to a DNA comprising said second protein binding site;
  - (ii) said second fusion gene; and
  - (iii) said third fusion gene;
- (d) measuring expression output of said first reporter gene in said first host cell, said second reporter gene in said second host cell, and said third reporter gene in said third host cell; and
- (e) interpreting the expression output results of step (d), whereby increased output of said first reporter gene in said first host cell relative to the output of said second reporter gene in said second host cell and said third reporter gene in said third host cell indicates that said first, said second, and said third proteins form an oligomeric complex.

50. (New) The method of claim 49, wherein any of said first, said second, or said third reporter genes are the same.

51. (New) The method of claim 49, wherein said second reporter gene or said third reporter gene comprises both said first protein binding site and said second protein binding site.

52. (New) The method of claim 49, wherein at least one of said first or said second protein binding sites is a tetracycline operator.

53. (New) The method of claim 49, wherein at least one of said reporter genes is URA3 or lacZ.

54. (New) The method of claim 49, wherein at least one of said reporter genes produces a signal that is received and detected by a second cell.

55. (New) The method of claim 49, wherein at least one of said host cells is a yeast cell or a mammalian cell.

56. (New) The method of claim 55, wherein at least one of said host cells is a yeast cell.